Data Management Requirements for all RFP Responses

The CBP is developing the Chesapeake Information Management System (CIMS) which is composed of a network of distributed information servers operated by CBP participating agencies. The creation of a distributed information system, committed to by the Chesapeake Executive Council in the 1996 strategy, is now possible as a result of the rapid expansion of the Internet and the advancement of data management practices. As CIMS matures, the intent is to have CBP databases created and managed by the data originator or contracting agency, and to have the information made directly available from the data originator's or contracting agency's institution through an Internet server.

Recipients of grants, cooperative agreements, and interagency agreements are required to submit deliverables in electronic format, whether or not this requirement is specified in the grant or contract. Electronic deliverables include reports, graphics, spreadsheets, imagery, data files, audio, and digital video products. Deliverables must be submitted on time as specified in the grant or contract. All data and information funded by the CBP agencies, whether direct CBP funding or indirect (matching funds), are the property of the CBP. All data and information, funded directly or indirectly by the CBP, is public information and shall be made available to the public, unless there is a grant or contract condition that specifies otherwise. In addition, source data that are collected and processed in the creation of a deliverable should also be submitted, if practical. Final details about how data and information must be submitted directly to the CBPO or made accessible through the Internet must be arranged with the EPA Project Officer.

Deliverable text is preferred in WordPerfect 6.1 format. Microsoft Word or PageMaker formats are also acceptable, depending on the product. Graphic images for reports are preferred in TIFF format. Images for web publication are preferred as GIF or JPEG format. GIS files are preferred as ARC/INFO non-compressed export (.E00) or ArcView (shape) formats. All deliverables must have companion metadata entered in the COMET system (www.chesapeakebay.net/comet).

The CBP has adopted a series of policies and guidelines addressing the management of data, information, and documents. Grantees and recipients of cooperative agreements and interagency agreements are required to adhere to the following policies and guidelines which are described in more detail in Attachment 1:

- Locational Data Policy
- Map Coordinate Datum Policy
- Map Coordinate Projection Guideline
- Metadata Policy
- Common Station Names Guideline
- Common Data Dictionary Guideline
- Common Database Design Guideline
- Calendar Date Policy
- Common Method Codes Guideline
- Data Reporting Guideline

The submission requirements for toxics data must also follow the aforementioned policy. However, specific guidelines have been identified by the Toxics Subcommittee for data and information that will be included in the toxics database. Additional Guidance is provided in Attachment 2 for these guidelines.

DOCUMENT DELIVERABLES

Grant recipients must submit both hardcopy and electronic versions of all document deliverables (technical reports, public documents, fact sheets, etc.) under the awarded grants. The electronic version of each document deliverable must be submitted on a PC disc (IBM compatible) in a PDF file format so that all documents can be made directly accessible by CBP partners, stakeholders, and the general public through the CBP web site. All deliverables must have companion metadata entered in the COMET system (www.chesapeakebay.net/comet).

Attachment 1

Chesapeake Bay Program
Guidance for Data Management

March 2000

Chesapeake Bay Program
410 Severn Avenue
Annapolis, Maryland 21403

Chesapeake Bay Program
Information Access Strategy

The Chesapeake Bay Program is a unique regional partnership leading and directing restoration of Chesapeake Bay since 1983. The Chesapeake Bay Program partners include the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U. S. Environmental Protection Agency, which represents the federal government; and participating citizen advisory groups.

In 1996, the Chesapeake Executive Council adopted the Chesapeake Bay Program's "Strategy for Increasing Basin-wide Public Access to Chesapeake Bay Information." The strategy calls for development of a shared resource of information, that is available through the Internet, based on standards and protocols that facilitate access to information and data across agency and jurisdictional boundaries.

This document provides guidance to contractors and grantees who accept funding from- and conduct work for Chesapeake Bay Program agency activities. The guidance in this document is provided to guide the collection, processing, and delivery of data and information products. In addition, it provides guidance to agencies serving information on the Internet as part of the Chesapeake Information Management System.

SUMMARY

This document describes the guidelines and policies for submitting data to the Chesapeake Bay Program (CBP) Data Center in Annapolis, Maryland or serving data on the Internet as part of the Chesapeake Information Management System (CIMS). Grantees, contractors, and data servers are required to submit deliverables in electronic format, whether or not this requirement is specified in the grant or contract. Electronic deliverables include reports, graphics, spreadsheets, imagery, data files, audio, and digital video products. Deliverables must be submitted on time as specified in the grant or contract. All data and information funded by CBP agencies, whether direct CBP funding or indirect (matching funds), are the property of the CBP. All data and information, funded directly or indirectly by the CBP is public information and shall be made available to the public, unless there is a grant or contract condition that specifies otherwise. In addition, source data collected and processed in the creation of a deliverable should also be submitted, if practical. If source data is submitted, it should also be delivered in electronic format. Final details about how data and information must be submitted must be arranged with the CBP Grant or Contract Officer.

This document provides information on:

- Deliverables
- Locational Data Policy
- Map Coordinate Datum Policy
- Map Coordinate Projection Guideline
- Metadata Policy
- Common Station Names Guideline
- Common Data Dictionary Guideline
- Common Database Design Guideline
- Calendar Date Policy
- Common Method Codes Guideline
- Data Reporting Guideline

The data dictionaries, data definitions, and user guidance referenced in the policies and guidelines in this document provide the detail necessary to provide data to the CBP. These are listed in the "Reference Material" section. The documents listed are available from the Chesapeake Bay Program (CBP), Chesapeake Information Management System (CIMS), Federal Geographic Data Committee (FGDC), or National Biological Information Infrastructure (NBII) Internet Web sites or the individual CBP data Managers. For data and information not specified in the "Reference Material" documents, contact your Grant or Contracting Officer to obtain the required technical details.

TABLE OF CONTENTS

INTRODUCTION

This Guide is intended to aid contractors and grantees in effectively collecting, processing, and submitting data and information to Chesapeake Bay Program agencies that fund contract and grant activities. In addition, it is intended to aid agencies in effectively serving information on the Internet as part of the Chesapeake Information Management System.

Chesapeake Bay Program Data Center

The Chesapeake Bay Program (CBP) maintains a Data Center at its office in Annapolis, Maryland. The purpose of the Data Center is to provide data management and technical support to program participants in order to accomplish the goals agreed on by the Chesapeake Executive Council and its committees. The Data Center manages the computer hardware and software of the Chesapeake Bay Program Office (CBPO), provides user support for these computer resources, acquires and stores data sets, and provides some data analysis support for Bay Program activities. Recipients of Data Center services are the CBP subcommittees, Bay Program managers, and the watershed's scientific community, stakeholders, and the public.

Most Chesapeake Bay Program participating agencies maintain separate information systems at their facilities. Therefore, it is the responsibility of the contracting agency and contractor to comply with the contract requirements of the funding agency and the policies and standards of the Chesapeake Bay Program.

Chesapeake Information Management System

The Chesapeake Bay Program is developing the Chesapeake Information Management System (CIMS), which is composed of a network of distributed information servers operated by CBP participating agencies. The creation of a distributed information system is required as a result of the rapid expansion of the Internet and the advancement of data management practices. As CIMS matures, the intent is to have CBP databases created and managed by the data originator or contracting agency, to have the information reside with the data originator or contracting agency, and to have the information made directly available from the data originator's or contracting agency's institution through an Internet server. This system has several advantages over a centralized information repository. Primarily, the people with the most expertise and knowledge about the information - the data originators - would be managing the data. Additional advantages include reduced costs due to elimination of intermediate data handling at a central repository, and decreased time between collection and release of the information. The major difficulties with a distributed system include: 1) the information provider MUST ensure a stable Internet connection; 2) the information MUST be maintained in a high quality controlled condition; 3) the information MUST be maintained up-to-date; and 4) the information MUST conform to agreed organization and data structures so that the information can be accessed and used by the larger Bay Program user audience.

CBP Internet Web Page

The CBP has operated an Internet Web Page since April 1995. Currently, this web site (http://www.chesapeakebay.net) provides the most complete inventory of data and information that is available for the Program.

CIMS Internet Web Page

A fundamental CIMS requirement is to make data and information available through the Internet from a variety of distributed information servers across the Chesapeake basin. A centralized CIMS web site (http://www.chesapeakebay.net/cims) is being operated which serves as a hub for CIMS information access. This web site is primarily a group of powerful search engines that can point user-queries to the appropriate information sources. The long-term plan is that the CIMS web site will also help a user retrieve information in a manner that facilitates interpretation and analysis to support the information query. The CIMS web site also provides web page addresses for CBP organizations who do not have adequate resources to maintain their own Internet servers. Database servers on the CIMS network provide interactive database search and query to support CBP data publication requirements.

Users who retrieve data and information from the CBP and CIMS web sites should, as a professional courtesy, acknowledge the CBP and data originators in publications which reference or use the databases.

CBP Guidelines and Policies

This section discusses the guidelines and policies that must be followed for by all agencies participating in data and information collection, processing, and submittal to the Chesapeake Bay Program. This includes not only the agencies contracted for Chesapeake Bay Program work, but also any agency that the contracting agency has involved in these activities. The CBP has adopted these guidelines and policies in order to improve coordination, compatibility, standardization, and information access throughout the Program. In addition to these guidelines and policies, any activities funded with Federal Government funds, must also adhere to applicable Federal Information Processing Standards (FIPS) (http://www.itl.nist.gov/div897/pubs/).

- Deliverables
- Locational Data Policy
- Map Coordinate Datum Policy
- Map Coordinate Projection Guideline
- Metadata Policy
- Common Station Names Guideline
- Common Data Dictionary Guideline
- Common Database Design Guideline
- Calendar Date Policy
- Common Method Codes Guideline
- Data Reporting Guideline

Deliverables

Grantees and contractors are required to submit deliverables in electronic format, whether or not this requirement is specified in the grant or contract. Electronic deliverables include reports, graphics, spreadsheets, imagery, data files, audio, and digital video products. Deliverables must be submitted on time as specified in the grant or contract. All data and information funded by CBP agencies, whether direct CBP funding or indirect (matching funds), are the property of the CBP. All data and information, funded directly or indirectly by the CBP is public information and shall be made available to the public, unless there is a grant or contract condition that specifies otherwise. In addition, source data that are collected and processed in the creation of a deliverable should also be submitted, if practical. Final details about how data and information must be submitted must be arranged with the CBP Grant or Contract Officer.

Deliverable text is preferred in WordPerfect 6.1 format. Microsoft Word or PageMaker formats are also acceptable, depending on the product. Graphic images for reports are preferred as TIFF format. Images for web publication are preferred as GIF or JPEG format. GIS files are preferred as ARC/INFO noncompressed export (.E00) or ArcView (shape) formats. All deliverables must have companion metadata.

Locational Data Policy

The Chesapeake Bay Program adheres to the EPA's locational data policy which requires consistent use of latitude/longitude coordinates to identify the location of entities. All data, containing spatial and/or specific geographic locations, collected or assembled under a grant or contract vehicle, for use by the Chesapeake Bay Program, or to be served on the Internet via the Chesapeake Information Management System (CIMS), must have latitude and longitude information for each entity. Projects not creating or reporting spatial data, but confined to a given project location(s), shall include the latitude/longitude of the location(s) within the study/final report.

In accordance with CBP locational data policy, data generators/servers and grant/contract recipients agree to ensure that latitude and longitude coordinates (given in degrees and decimal degrees) are provided for all sites for which data are collected and accurate to the level required for the purpose of the application of the data. Field measured locations shall be accurate to the best practical geographic positioning method. Currently, Differential Global Positioning System (GPS) equipment can reliably provide locational coordinates accurate to within 10-25 meters (5 decimal places in decimal degrees), and is the preferred method of point location determination. Applications such as station monitoring locations should provide locational data with accuracy to that level. Other applications, such as digitizing points or watershed boundaries from mylar-media maps, can not provide accuracy better than that of the original map, and can not match the accuracy of GPS or surveyed locations. Remote sensing platforms can now collect sub-meter resolution data (6 decimal places in decimal degrees). Therefore, it is required that metadata be provided for all data and must include a measurement of the accuracy of the coordinates and the original source material and methods for obtaining the coordinates. It is the responsibility of data generators/providers to provide coordinates accurate to the level that is practical for the intended application, and to document the accuracy of those coordinates. The data generator/provider/server further agrees to document, in writing, that locational data were derived using an approved method and recorded in accordance with federal regulations and other EPA requirements, noted in the “Authorities” section of the EPA's policy. Grantees shall include in their application an assurance to comply with this requirement. Contractors must comply with this requirement, and the contract workplan must include a discussion of the method for complying with this requirement.

Map Coordinate Datum Policy

The Chesapeake Bay Program has adopted the policy that all data generated or collected for, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS shall utilize the North American Datum 1983 (NAD83) horizontal reference and the North American Vertical Datum 1988 (NAVD88) vertical reference. Most likely, organizations have been using NAD27 horizontal reference since USGS maps were historically created using this reference. The requirement to use NAD83 will require conversion of latitudes and longitudes using NAD27 to NAD83. Metadata reporting requires specification of the horizontal and vertical datum where applicable.

Map Coordinate Projection Guideline

The Chesapeake Bay Program has adopted the policy that the standard projection for geographic information system (GIS) files maintained at the Chesapeake Bay Program Office (CBPO) shall be UTM Zone 18 (meters) for all data within the Chesapeake Bay Basin. For larger or national GIS data files, the standard projection for GIS files maintained at the CBPO shall be Albers Conical Equal Area (meters). This policy was established to provide consistency in computing distance and area calculations, map shapes, and to facilitate database design and maintenance, and based on the recommendation of USGS. GIS and data files containing spatial data, must have coordinates reported as latitude and longitude (decimal degrees) as per the Locational Data Policy. Ideally, it is requested that information containing projected coordinates, also report coordinates in UTM Zone 18. GIS files submitted to the Program or served by CIMS participants, are preferred in ARC/INFO noncompressed export or ArcView Shape format for compatibility with the majority of the Chesapeake Bay Program GIS databases. Partner organizations who have historically maintained GIS files in another projection or coordinate system are exempt from this policy (unless they are developing or providing data products as part of a Bay Program initiative) since the effort to convert large historical holdings would be prohibitive.

Metadata Policy

The Chesapeake Bay Program has adopted the policy, consistent with Presidential Executive Order #12906, that all data generated or collected using federal funds, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS, shall be accompanied by metadata (descriptive information about the data, often referred to as documentation) that fully conforms to the Federal Geographic Data Committee's requirements for metadata. Metadata created for Chesapeake Bay Program shall also be delivered to the EPA or other federal Clearinghouse as a requirement to fulfilling this policy and related grant or contract conditions. The FGDC guide for creating metadata is the *Content Standards for Digital Geospatial Metadata Workbook* (URL:http://www.mews.org/nsdi/#documents).

The Chesapeake Bay Program has also adopted the policy, that all data generated or collected using federal funds, submitted to the Chesapeake Bay Program, or served on the Internet via

CIMS, shall adhere to the National Biological Information Infrastructure's (NBII) Metadata Standard, where applicable. The NBII Metadata Standard, popular for environmental programs, provides extensions to the FGDC Metadata for documenting biological data and information. Currently this standard, the *Draft Content Standard for National Biological Information Infrastructure Metadata*, is in draft form (URL: http://www.nbs.gov/nbii/non-spatial.html). FGDC is reviewing how these and other extensions can be added to the FGDC standard so that the standard is useful to a larger user population. Chemistry extensions would also be quite useful for CBP use.

Data to be accessed on the Internet via CIMS must follow the *CIMS Metadata Reporting Guidelines* established by the CBP. This Guideline was established to facilitate entering consistent, accurate metadata to ensure the information about the Chesapeake Bay will be easily available, and used appropriately. The *CIMS Metadata Reporting Guidelines* is also accessible on the CIMS Internet Web Page.

The COMET system (www.chesapeakebay.net/comet) provides a streamlined, easy to use tool for entering metadata that meets CIMS and FGDC requirements.

Common Station Names Guideline

The Chesapeake Bay Program has adopted the guideline that all data generated or collected for, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS should utilize a consistent set of common station names for identifying and reporting monitoring station locations. It is the data provider's responsibility to comply with this guideline. The purpose of this guideline is to create one master table of station names, to the extent possible, to reduce confusion among cooperating agencies. The Station Names table, maintained on the Chesapeake Bay Program web site, should serve as the master list. Updates to this table that are required by data submitters shall be coordinated with the CIMS Implementation Team to maintain one consistent stations names list.

Common Data Dictionary Guideline

The Chesapeake Bay Program has adopted the guideline that all data generated or collected for, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS should utilize the CBP common data dictionary for defining all data elements and units of measure. It is the data provider's responsibility to comply with this policy. The purpose of this guideline is to create one data dictionary, to the extent possible, to reduce confusion among cooperating agencies. Updates required by data submitters to the dictionary shall be coordinated with the CIMS Technical Information Access Team to maintain one consistent data dictionary.

Common Database Design Guideline

The Chesapeake Bay Program has adopted the guideline that all data generated or collected for, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS should utilize the

CBP common database design for managing data. It is the data provider's responsibility to comply with this guideline. The purpose of this guideline is to use common database designs, to the extent possible, to simplify data formatting and sharing. Modifications to the common database design shall be coordinated with the CIMS Technical Information Access Team to maintain consistency in the database structure. If the Chesapeake Bay Program agencies do not have a pre-defined database that is acceptable for the work being conducted, the grantee/contractor should work with the funding agency to develop a database design that suits the requirements of the work, while maintaining maximum compatibility with other CBP database designs.

Calendar Date Policy

The Chesapeake Bay Program has adopted the standard that all data generated or collected for, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS should adhere to the Federal Information Processing Standard, Representation for Calendar Date and Ordinal Date for Information Interchange (FIPS PUB 4-1).

This standard states "For purposes of electronic data interchange in any recorded form among U.S. Government agencies, National Institute of Standards and Technology (NIST) highly recommends that four-digit year elements be used.". The year should encompass a two-digit century that precedes, and is contiguous with, a two-digit year-of-century (e.g., 1999, 2000, etc.). In addition, optional two-digit year time elements specified in ANSI X3.30-1985(R1991) should not be used for the purposes of any data interchange among U.S. Government agencies.

Therefore, it is required to report and store all dates using four digits for the year. In addition to facilitating data sharing, this requirement reduces the complications of processing date data after the millennium rollover at year 2000.

Common Method Codes Guideline

The CBP has adopted the guideline that all data generated or collected for, submitted to the CBP, or served on the Internet via CIMS should utilize the CBP Method Codes tables, which are defined in the "Guide to using CBP Water Quality Monitoring Data" and "The 1996 Users Guide to CBP Biological and Living Resources Monitoring Data", as well as in the actual CBP relational database tables. It is the data provider's responsibility to comply with this guideline. The purpose of this guideline is to use standardized method codes, to the extent possible, to simplify data coding and sharing. The methods used by monitoring agencies and analytical laboratories are critical in providing accurate measurements. Knowing the field and laboratory methods used is critical, therefore capturing the methods is a high priority during database development. Modifications to the CBP Method Codes shall be coordinated with the CIMS Technical Information Access Team to maintain consistency in the table contents. If CBP agencies do not have a pre-defined method code that is acceptable for the work being conducted, the grantee/contractor should work with the funding agency to develop method codes that suits the requirements of the work, while maintaining maximum compatibility with other CBP codes.

Numeric Data Reporting Guideline

The Chesapeake Bay Program has adopted the guideline that all data generated or collected for, submitted to the Chesapeake Bay Program, or served on the Internet via CIMS should report numeric data elements at the same level of precision as that of the original measurement. The exact precision of recorded values must be maintained. This guideline has a significant impact on data analysis and the decisions made based on these analyses.

Values should not be zero-filled to greater precision than actually recorded. For instance, if the measured value is 0.03, then the reported value should be 0.03 and not 0.030, which would imply precision to the third decimal place. For values that are recorded as below or above detection, a detection flag (in a separate data field) shall be used to identify the value as below or above the detection limit of the method, and the value shall be reported as the detectable limit. Values should be reported as zero, only if the measured or recorded value is zero. Values that are missing shall be reported as missing or null or nil, to identify values that were sampled but no value was obtained. Missing, null, or nil values are different than those that were never sampled, which should be recorded as a blank field, if they are recorded at all. It is the responsibility of the data submitter to record in the metadata, how measurements are coded, as well as the accuracy of the measurements.

It is important to note that some software tools used in data processing may represent the data internally with more precision than the original measurement, and/or may round the value. For instance even though a value of 0.3 was entered, the value may be stored and reported as 0.299999.

REFERENCE MATERIAL

Chesapeake Bay Program. *Chesapeake Bay Program Home Page (URL: http://www.chesapeakebay.net/)*. Chesapeake Bay Program, Annapolis, MD.

Chesapeake Bay Program. *Chesapeake Information Management System (CIMS) Home Page (URL: http://www.chesapeakebay.net/cims)*. Chesapeake Bay Program, Annapolis, MD.

Chesapeake Bay Program. July 1997. *Chesapeake Information Management System (CIMS) Metadata Reporting Guidelines.* Chesapeake Bay Program, Annapolis, MD.

Federal Geographic Data Committee. June 1994. *Content Standards for Digital Geospatial Metadata. (URL: http://www.mews.org/nsdi/#documents).* Federal Geographic Data Committee. Washington, D.C.

National Biological Service. December 1995. *Draft Content Standard for National Biological Information Infrastructure Metadata (URL: http://www.nsb.gov/nbii/non-spatial.html).*

U.S. Environmental Protection Agency. July 1988. *Chesapeake Bay Living Resources Monitoring Plan, Agreement Commitment Report*. Chesapeake Bay Program, Annapolis, Maryland, 94pp.

U.S. Environmental Protection Agency. August 1989. *Living Resources Data Management Plan, Revision 1*. Chesapeake Bay Program, Annapolis, MD, CBP/TRS 33/89.

U.S. Environmental Protection Agency. March 1993. *Chesapeake Bay Program Data Dictionary*. Chesapeake Bay Program, Annapolis, MD.

U.S. Environmental Protection Agency. March 1993. *Chesapeake Bay Program Data Management Plan*. Chesapeake Bay Program, Annapolis, MD.

U.S. Environmental Protection Agency. March 1993. *Guide to Using Chesapeake Bay Program Water Quality Monitoring Data*. Chesapeake Bay Program, Annapolis, MD.

U.S. Environmental Protection Agency. September 1996. *The 1996 Users Guide to Chesapeake Bay Program Biological and Living Resources Monitoring Data*. Chesapeake Bay Program, Annapolis, MD.

Attachment 2

Toxics Data Acquisition Specifications

The following is a description of what the Bay Program needs to incorporate your data in the Chesapeake Bay Toxics Data Base. We understand that it will take a certain degree of time and effort to compile the information requested, but it is essential to the inclusion and proper representation of your valuable data. If you have any concerns, please call Kelly Eisenman, the Chesapeake Bay Program Toxics Coordinator, at (410)267-5728 to discuss options.

Data Content

Monitoring Data typically include the following information:

- location (e.g., latitude and longitude, utms, maps)
- sample depth
- date
- time
- sample identifier
- medium (e.g., tissue, water column, sediment)
- biological species
- parameter (i.e., chemical name)
- chemical species (e.g., total recoverable, dissolved)
- value
- detection limit
- detection limit type (e.g., method, instrument)
- instrument

Toxicity Data typically include the following information:

- test location (e.g., lab, field)
- test media (e.g., freshwater, saltwater)
- toxicity effect (e.g., EC50, LC50)
- type of chemical exposure to test organism
- species
- organism life stage information (e.g., age, weight, length)
- parameter (i.e., chemical name)
- exposure duration
- water temperature
- water hardness
- water alkalinity
- water dissolved oxygen content
- water pH
- effect concentration
- units
- effect concentration type (e.g., total recoverable, dissolved)
- bioconcentration factor.

Quality Assurance Information
The Chesapeake Bay Program needs to understand the quality of the data that are being made available. If possible, please send a copy of your QA Plan. Questions that are of specific interest include:

- Have the data been quality checked?
- Were any irregularities identified in the data?
- Have any irregularities in the data been flagged in the dataset submitted? How?

Data Documentation
It is important that the Chesapeake Bay Program fully understand the way the data were collected, analyzed, and reported, as well as any assumptions or limitations of the data. Any documentation and/or publications that describe the collection procedure, the data presented, or the QA procedures that were used are of interest.

Data Format and File Structure
The Chesapeake Bay Program can handle data in the following formats:

- SAS transport file
- DBASE file
- Microsoft Access file
- Flat ASCII files - fixed format
- Flat ASCII files- character delimited. Please note that commas are valid in text strings, therefore comma delimited files must qualify text with quotation marks.

NOTE: if it is necessary to format the data differently, please contact the Toxics Coordinator to confirm that the Bay Program can handle the proposed format.

It is important that the following information is submitted with the data to ensure that the data are handled correctly when loaded into the Chesapeake Bay Toxics Data Base:

- Documentation of the data files, including field names, field types (i.e., character or numeric), the width and format of each field, and the delimiter used
- A printout of the first 10-50 lines of each table or data file

Data Transfer
Electronic files can be transferred to the Chesapeake Bay Program in two ways:

- through an FTP transport
- on 3 1/2 inch, IBM format, 1.44 MB diskettes